

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Original): A process for the preparation of polysiobutenylphenol-containing Mannich adducts by

a) alkylation of a phenol with highly reactive polyisobutene having a number average molecular weight of less than 1000 and a polydispersity of less than 3.0 at below about 50 °C in the presence of an alkylation catalyst;

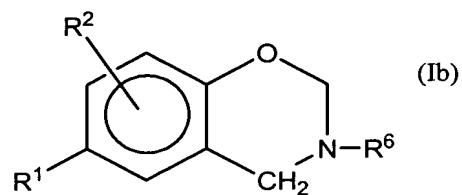
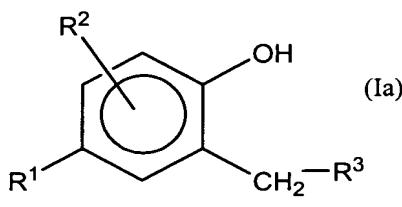
b) reaction of the reaction product from a) with

b1) an aldehyde chosen from formaldehyde, an oligomer and a polymer of formaldehyde and

b2) at least one amine which has at least one primary or at least one secondary amino function.

Claim 2 (Previously Presented) The process as claimed in claim 1, wherein the amine is 3-(dimethylamino)-n-propylamine, di[3-(dimethylamino)-n-propyl]amine, dimethylamine, diethylamine or morpholine.

Claim 3 (Previously Presented) The process as claimed in claim 1, wherein an adduct mixture is obtained which comprises at least 40 mol% of compounds of the formula Ia and/or Ib,

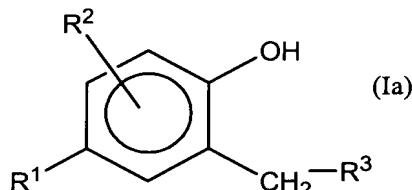


where

R<sup>1</sup> is a terminally bonded polyisobut enyl radical,

R<sup>2</sup> is H, C<sub>1</sub>- to C<sub>20</sub>-alkyl, C<sub>1</sub>- to C<sub>20</sub>-alkoxy, hydroxyl, a polyalkylenyl radical or CH<sub>2</sub>NR<sup>4</sup>R<sup>5</sup>, where R<sup>4</sup> and R<sup>5</sup> have the meanings stated below, and

R<sup>3</sup> is NR<sup>4</sup>R<sup>5</sup>, where R<sup>4</sup> and R<sup>5</sup>, independently of one another, are selected from the group consisting of H, C<sub>1</sub>- to C<sub>20</sub>-alkyl, C<sub>3</sub>- to C<sub>8</sub>-cycloalkyl and C<sub>1</sub>- to C<sub>20</sub>-alkoxy radicals which may be interrupted and/or substituted by N and O heteroatoms, and phenol radicals of the formula II



where R<sup>1</sup> and R<sup>2</sup> are as defined above;

with the proviso that R<sup>4</sup> and R<sup>5</sup> are not simultaneously H or phenol radicals of the formula II; or R<sup>4</sup> and R<sup>5</sup>, together with the N atom to which they are bonded, form a 5-, 6- or 7-membered cyclic structure which has one or two heteroatoms selected from N and O and may be substituted by one, two or three C<sub>1</sub>- to C<sub>6</sub>-alkyl radicals; and

R<sup>6</sup> is a radical R<sup>4</sup> or R<sup>5</sup> other than H.

Claim 4 (Previously Presented) The process as claimed in claim 1, wherein an adduct having a polydispersity of from 1.1 to 3.5 is obtained.

**Claim 5 (Previously Presented)** The process as claimed in claim 1, wherein R<sup>1</sup> has a number average molecular weight of from 300 to 850.

**Claim 6 (Previously Presented)** The process as claimed in claim 1, wherein the reaction mixture from b) is fractionated by column chromatography over an acidic stationary phase by multistage elution with

- at least one hydrocarbon and then
- at least one basic alcohol/water mixture.

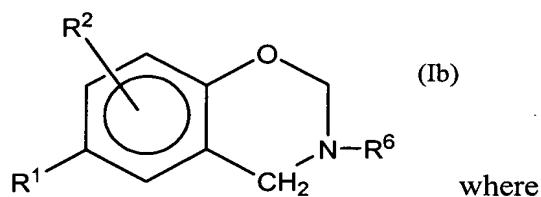
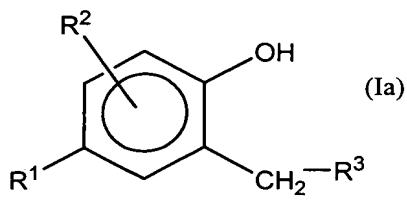
**Claim 7 (Previously Presented)** The process as claimed in claim 6, wherein the basic alcohol/water mixture is a mixture of

- a) from 75 to 99.5% by weight of at least one C<sub>2</sub>- to C<sub>4</sub>-alcohol,
- b) from 0.4 to 24.4% by weight of water, and
- c) from 0.1 to 15% by weight of at least one amine which is volatile at room temperature.

**Claim 8 (Previously Presented)** The process as claimed in claim 1, wherein the adduct mixture obtained includes from 0 to 20 mol% of polyisobutetylphenols from reaction step a) which have not been further reacted.

**Claim 9 (Previously Presented)** A Mannich adduct obtained by the process as claimed in claim 1.

**Claim 10 (Previously Presented)** A Mannich adduct comprising at least one compound of the formula Ia and/or Ib,

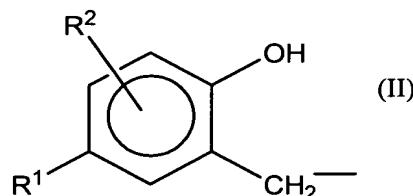


where

R<sup>1</sup> is a terminally bonded polyisobut enyl radical,

R<sup>2</sup> is H, C<sub>1</sub>- to C<sub>20</sub>-alkyl, C<sub>1</sub>- to C<sub>20</sub>-alkoxy, hydroxyl, a polyalkylenyl radical or CH<sub>2</sub>NR<sup>4</sup>R<sup>5</sup>, where R<sup>4</sup> and R<sup>5</sup> have the meanings stated below, and

R<sup>3</sup> is NR<sup>4</sup>R<sup>5</sup>, where R<sup>4</sup> and R<sup>5</sup>, independently of one another, are selected from the group consisting of H, C<sub>1</sub>- to C<sub>20</sub>-alkyl, C<sub>3</sub>- to C<sub>8</sub>-cycloalkyl and C<sub>1</sub>- to C<sub>20</sub>-alkoxy radicals which may be interrupted and/or substituted by N and O heteroatoms, and phenol radicals of the formula II



where R<sup>1</sup> and R<sup>2</sup> are as defined above;  
with the proviso that R<sup>4</sup> and R<sup>5</sup> are not simultaneously H or phenol radicals of the formula II; or R<sup>4</sup> and R<sup>5</sup>, together with the N atom to which they are bonded, form a 5-, 6- or 7-membered cyclic structure which has one or two N and O heteroatoms and may be substituted by one, two or three C<sub>1</sub>- to C<sub>6</sub>-alkyl radicals; and

R<sup>6</sup> is a radical R<sup>4</sup> or R<sup>5</sup> other than H.

Claim 11 (Canceled).

Claim 12 (Previously Presented): An additive concentrate containing, in addition to conventional additive components, at least one Mannich adduct as claimed in claim 9 in amounts of from 0.1 to 99.9% by weight.

Claim 13 (Previously Presented): A fuel composition containing a main amount of a liquid hydrocarbon fuel and an amount, having detergent activity, of at least one adduct as claimed in claim 9.

Claim 14 (Previously Presented): A lubricant composition containing a main amount of a liquid, semisolid or solid lubricant and an amount, having detergent activity, of at least one adduct as claimed in claim 9.

Claim 15 (Canceled).

Claim 16 (Previously Presented): An additive concentrate containing, in addition to conventional additive components, at least one Mannich adduct as claimed in claim 10 in amounts of from 0.1 to 99.9% by weight

Claim 17 (Previously Presented): A fuel composition containing a main amount of a liquid hydrocarbon fuel and an amount, having detergent activity, of at least one adduct as claimed in claim 10.

Claim 18 (Previously Presented): A lubricant composition containing a main amount of a liquid, semisolid or solid lubricant and an amount, having detergent activity, of at least one adduct as claimed in claim 10.

Claim 19 (Previously Presented): The process as claimed in claim 1, wherein the adduct mixture obtained includes from 1 to 15 mol% of polyisobutenyphenols from reaction step a) which have not been further reacted.

Claim 20 (Previously Presented): An additive concentrate containing, in addition to conventional additive components, at least one Mannich adduct as claimed in claim 9 in amounts of from 0.5 to 80% by weight.

Claim 21 (Previously Presented): An additive concentrate containing, in addition to conventional additive components, at least one Mannich adduct as claimed in claim 10 in amounts of from 0.5 to 80% by weight.

Claim 22 (Previously Presented): A method for preparing a detergitzed fuel or lubricant composition, said process comprising adding the Mannich adduct claimed in claim 9 to a fuel or a lubricant composition.

Claim 23 (Previously Presented): A method for preparing a detergitzed fuel or lubricant composition, said process comprising adding the Mannich adduct claimed in claim 10 to a fuel or a lubricant composition.

Claim 24 (New): The process as claimed in Claim 1, wherein the highly reactive polyisobutene has a number average molecular weight of less than 900.

Claim 25 (New): The process as claimed in Claim 1, wherein the alkylation of the phenol is carried out at below 35 °C.

Claim 26 (New): The process as claimed in Claim 1, wherein the Mannich adduct has a polydispersity of from 1.05 to 3.5.

Claim 27 (New): The process as claimed in Claim 1, wherein the Mannich adduct has a polydispersity of from 1.1 to 1.9.

Claim 28 (New): A process for making a polyisobutetyl phenol-containing Mannich adduct, comprising:

alkylating a phenol with a highly reactive polyisobutene having a number average molecular weight of less than 1000 and a polydispersity of less than 3.0 at below about 50 °C in the presence of an alkylation catalyst to form a first reaction product;

reacting the first reaction product with an aldehyde selected from the group consisting of formaldehyde, an oligomer of formaldehyde and a polymer of formaldehyde, and at least one amine selected from the group consisting of an amine having at least one primary group and an amine having at least one secondary amino function, to form a second reaction product;

fractionating the second reaction product by a column chromatography over an acidic stationary phase by multistage elution with at least one hydrocarbon and then at least one basic alcohol/water mixture.

Claim 29 (New): A process for making a polyisobutetyl phenol-containing Mannich adduct, comprising:

alkylating a phenol with a highly reactive polyisobutene having a number average molecular weight of less than 1000 and a polydispersity of less than 3.0 at below about 50 °C in the presence of an alkylation catalyst to provide a first reaction product;

reacting the first reaction product with an aldehyde selected from the group consisting of formaldehyde, an oligomer of formaldehyde, and a polymer of formaldehyde, and at least one amine selected from the group consisting of an amine having at least one primary function and an amine having at least one secondary amino function, to form a second reaction product;

fractionating the second reaction product by chromatography over an acidic stationary phase by multistage elution with at least one hydrocarbon and then at least one basic alcohol/water mixture comprising from 75 to 99% by weight of at least one C<sub>2</sub>- to C<sub>4</sub>-alcohol; from 0.4 to 24.4% by weight of water; and from 0.1 to 15% by weight of at least one amine which is volatile at room temperature.

BASIS FOR THE AMENDMENT

Claims 1-10, 12-14, and 16-29 are active in the present application. Claims 11 and 15 have been canceled claims. Claims 24-29 are new claims. Support for new Claim 24 is found on page 3, lines 36-38. Support for new Claim 25 is found on page 5, lines 1-2. Support for new Claim 26 is found on page 15, lines 40-42. Support for new Claim 27 is found on page 15, lines 40-42. Support for new independent Claim 28 is found in original Claims 1 and 6. Support for new independent Claim 29 is found in original Claims 1 and 6-7. No new matter is added.